

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently Amended): An image data generating apparatus comprising:

- means for generating image data;
- means for generating ~~color space~~ information that designates color space information to be used by an image output apparatus, and that reflects image output characteristics of said image output apparatus, said color space information designating color space conversion of said image data from an input color space to an output color space by ~~an~~ said image processing output apparatus; and
- means for storing said image data in association with said ~~color space~~ information that designates said color space information.

Claim 2 (Currently Amended): An image data generating apparatus according to Claim 1, further comprising:

- means for designating the color space information for use by said image ~~processing~~ output apparatus; and
- means for storing a plurality of items of the color space information designated for different types of color spaces, wherein
- said means for designating the color space information includes
 - means for displaying said plurality of items of the color space information, and
 - means for selecting one item of the color space information from among said displayed items of the color space information.

Claim 3 (Currently Amended): An image data generating apparatus according to Claim 1, further comprising:

- means for designating the color space information for use by said image ~~processing~~ output apparatus; and
- means for storing a plurality of combinations of identifying information for candidate image ~~processing~~ output apparatuses and associated color space information for each candidate image ~~processing~~ output apparatus; wherein
- said means for designating the color space information includes
 - means for displaying the candidate image ~~processing~~ output apparatuses for performing image processing, and

means for selecting one of the candidate image ~~processing~~ output apparatuses from among the candidate image ~~processing~~ output apparatuses displayed by said means for displaying.

Claim 4 (Currently Amended): An image data generating apparatus according to Claim 1, further comprising:

means for assembling an output file that contains said image data, and said information that designates said color space information.

Claim 5 (Original): An image data generating apparatus according to Claim 4, further comprising:

means for interfacing with an external device and for communicating said output file to said external device.

Claim 6 (Currently Amended): An image data generating apparatus comprising:

means for acquiring image data;

means for designating with ~~color-space~~ information that designates color space information to be used by an image output apparatus, and that reflects image output characteristics of said image output apparatus an output color space to be used by ~~an~~ said image ~~processing~~ output apparatus in color space conversion, said image ~~processing~~ output apparatus being a different apparatus than said means for acquiring data; and

means for generating an image file containing

image data obtained by said means for acquiring, and

the ~~color-space~~ information that designates said color space information.

Claim 7 (Original): An image data generating apparatus according to Claim 6, wherein:

said output color space having a gamut that is at least as wide as a color space used in synthesis of said image data.

Claim 8 (Currently Amended): A method for generating an image file in an image data generating apparatus, comprising steps of:

generating image data;

generating an image file containing

image data generated in said generating step, and

~~color space~~ information that designates color space information to be used by an image output apparatus, and that reflects image output characteristics of said image output apparatus, said color space information designating color space conversion of said image data from an input color space to an output color space by an said image processing output apparatus; and

storing said image data in association with said ~~color space~~ information that designates said color space information.

Claim 9 (Currently Amended): The method of Claim 8, further comprising steps of:

designating said information that designates said color space information for use by said image ~~processing output~~ apparatus; and

storing a plurality of items of said information that designates said color space information designated for different types of color spaces, wherein

said step of designating said information that designates said color space information includes steps of

displaying said stored information that designates said color space information, and

selecting one item of said information that designates said color space information from among said displayed items of said information that designates said color space information.

Claim 10 (Currently Amended): The method of Claim 8, further comprising steps of:

designating said information that designates said color space information for use by said image ~~processing output~~ apparatus; and

storing a plurality of combinations of identifying information for candidate image ~~processing output~~ apparatuses and associated information that designates said color space information for each candidate image ~~processing output~~ apparatus; wherein

said step of designating said information that designates said color space information includes

displaying the candidate image ~~processing~~ output apparatuses for performing image processing, and

selecting one of the candidate image ~~processing~~ output apparatuses from among the candidate image ~~processing~~ output apparatuses displayed in said displaying step.

Claim 11 (Currently Amended): The method of Claim 8, further comprising a step of:
assembling an output file that contains said image data, and said information that designates said color space information.

Claim 12 (Original): The method of Claim 11, further comprising a step of:
sending said output file to an external device via at least one of an electric signal and an electromagnetic signal.

Claim 13 (Currently Amended): A method for generating image data in an image data generating apparatus, comprising steps of:
acquiring image data;
designating with ~~color space~~ information that designates color space information to be used by an image output apparatus, and that reflects image output characteristics of said image output apparatus an output color space to be used by an said image processing output apparatus in color space conversion, said image ~~processing~~ output apparatus being a different apparatus than a an apparatus employed to accomplish said acquiring step; and
generating an image file containing
image data obtained by said acquiring step, and
the ~~color space~~ information that designates said color space information.

Claim 14 (Original): The method of Claim 13, wherein:
said output color space having a gamut that is at least as wide as a color space used in synthesis of said image data.

Claim 15 (Currently Amended): A propagated data signal for conveying image data and ~~color-space~~ information that designates color space information to be used by an image output apparatus, and that reflects image output characteristics of said image output apparatus to an ~~an~~ said image processing output apparatus, said propagated data signal comprising:

an image data file containing digital image data of a subject captured on an image data generating apparatus; and

the ~~color-space~~ information that designates color space information to be used by said image output apparatus, and that reflects image output characteristics of said image output apparatus, the color space information designating color space conversion of said image data from an input color space to an output color space, and the color space information being associated with ~~an~~ said image processing output apparatus that performs a color space conversion on said image data in said image processing output apparatus.

Claim 16 (Currently Amended): The propagated data signal of Claim 15, wherein:

said image data file and said information that designates said color space information ~~being~~ are included as part of an Exif file that is embodied in said propagated data signal.

Claim 17 (Currently Amended): An image data generating apparatus comprising:

an image data generation mechanism configured to generate image data;

an image file assembly mechanism configured to assemble an image file containing image data generated by said image data generation mechanism, and ~~color-space~~ information that designates color space information to be used by an image output apparatus, and that reflects image output characteristics of said image output apparatus, said color space information designating color space conversion of said image data from an input color space to an output color space by an independent image processing output apparatus; and

a memory configured to store said image data in association with said ~~color-space~~ information that designates said color space information.

Claim 18 (Currently Amended): An image data generating apparatus according to Claim 17, wherein:

said information that designates said color space information includes matrix values for use in color space conversion processing to be executed by said independent image processing output apparatus.

Claim 19 (Currently Amended): An image data generating apparatus according to Claim 17, further comprising:

a designation mechanism configured to designate said information that designates said color space information for use by said independent image ~~processing~~ output apparatus, wherein

said memory is configured to hold a plurality of color space information entries, each containing information that designates said color space information associated with different candidate image ~~processing~~ output apparatuses,

said designation mechanism includes

a display that is configured to display said plurality of entries of color space information, and

a selection mechanism that is configured to select one of said plurality of entries of color space information from among the plurality of entries presented by said display.

Claim 20 (Currently Amended): An image data generating apparatus according to Claim 17, further comprising:

a designation mechanism configured to designate information that designates said color space information for use by said independent image ~~processing~~ output apparatus, wherein

said memory is configured to hold a plurality of combinations of identifying information for candidate image ~~processing~~ output apparatuses and associated information that designates said color space information for each candidate image ~~processing~~ output apparatus, wherein

said designation mechanism includes

a display configured to display the candidate image ~~processing~~ output apparatuses for performing image processing, and

a selection mechanism configured to select one of the candidate image ~~processing~~ output apparatuses from among the candidate image ~~processing~~ output apparatuses presented by said display.

Claim 21 (Previously Presented): An image data generating apparatus according to Claim 17, wherein:

the image data generating apparatus is at least one of a DSC, a DVC, and a scanning device.

Claim 22 (Previously Presented): An image data generating apparatus according to Claim 21, wherein:

the image data generating apparatus is the DSC.

Claim 23 (Currently Amended): An image data generating apparatus according to Claim 17, further comprising:

a file assembly mechanism configured to compile an output file that contains said image data, and said information that designates said color space information.

Claim 24 (Previously Presented): An image data generating apparatus according to Claim 23, wherein:

said output file is an Exif file.

Claim 25 (Currently Amended): An image data generating apparatus according to Claim 24, wherein:

the information that designates said color space information is a tag stored in a Makernote portion of the Exif file.

Claim 26 (Original): An image data generating apparatus according to Claim 17, wherein:

said memory includes a removable memory card.

Claim 27 (Original): An image data generating apparatus according to Claim 23, further comprising:

an I/O interface configured to transmit said output file as at least one of an electric signal and an electromagnetic signal.

Claim 28 (Currently Amended): An image data generating apparatus comprising:
an image file acquisition mechanism configured to acquire image data;
a designation mechanism configured to designate an output color space to be used by an independent image ~~processing~~ output apparatus in color space conversion of said image data, said independent image ~~processing~~ output apparatus being a different apparatus than said image file acquisition mechanism; and
a file assembly mechanism configured to assemble an image file containing
image data obtained by said image file acquisition mechanism, and
the color space information that designates color space information to be used by said independent image output apparatus, and that reflects image output characteristics of said independent image output apparatus.

Claim 29 (Previously Presented): An image data generating apparatus according to Claim 28, wherein:

said output color space has a gamut that is at least as wide as a color space used in synthesis of said image data.

Claim 30 (Currently Amended): A computer program product, comprising:
a computer storage medium; and
a computer program code mechanism embedded in the computer storage medium for causing a computer to generate an image file, the computer program code mechanism having a first computer code device configured to generate image data, and
a second computer code device configured to generate an image file containing said generated image data, together with associated ~~color space~~ information that designates color space information to be used by an independent image output apparatus, and that reflects image output characteristics of said independent image output apparatus, said color space information designating color space conversion of said image data from an input color space to an output color space for use by an said independent image ~~processing~~ output apparatus.

Claim 31 (Currently Amended): The computer program product of Claim 30, further comprising:

a third computer code device configured to designate said information that designates said color space information for use by said independent image ~~processing~~ output apparatus, wherein

said computer storage medium configured to hold a plurality of color space information entries, each containing information that designates said color space information associated with different candidate image ~~processing~~ output apparatuses,

the third computer code device including

a display mechanism that is configured to provide a signal output suitable for presentation on a display so as to present said plurality of entries of color space information, and

a selection mechanism that is configured to select one of said plurality of entries of color space information from among the plurality of entries presented by said display.

Claim 32 (Currently Amended): The computer program product of Claim 30, further comprising:

a third computer code device configured to designate said information that designates said color space information for use by said independent image ~~processing~~ output apparatus, wherein

said computer storage medium is configured to hold a plurality of combinations of identifying information for candidate image ~~processing~~ output apparatuses and associated information that designates said color space information for each candidate image ~~processing~~ output apparatus, wherein

said designation mechanism includes

the third computer code device including

a display mechanism that is configured to provide a signal output suitable for presentation on a display so as to present the candidate image ~~processing~~ output apparatuses for performing image processing, and

a selection mechanism that is configured to select one of the candidate image ~~processing~~ output apparatuses from among the candidate image ~~processing~~ output apparatuses presented by said display.

Claim 33 (Currently Amended): The computer program product of Claim 30, further comprising:

a third computer code device configured to compile an output file that contains said image data, and said information that designates said color space information.

Claim 34 (Currently Amended): A computer program product, comprising:

a computer storage medium; and

a computer program code mechanism embedded in the computer storage medium for causing a computer to acquire image data, the computer program code mechanism having a first computer code device configured to implement an image file acquisition mechanism configured to acquire image data,

a second computer code device configured to implement a designation mechanism configured to designate an output color space to be used by an independent image ~~processing~~ output apparatus in color space conversion of said image data, said independent image ~~processing~~ output apparatus being a different apparatus than said image file acquisition mechanism; and

a third computer code device configured to implement a file assembly mechanism configured to assemble an image file containing

image data obtained by said image file acquisition mechanism, and

~~the color space~~ information that designates color space information to be used by said independent image output apparatus, and that reflects image output characteristics of said image output apparatus.

Claim 35 (Original): The computer program product of Claim 34, wherein:

said output color space having a gamut that is at least as wide as a color space used in synthesis of said image data.

Claim 36 (Currently Amended): A computer program product, comprising:

a computer storage medium; and

a computer program code mechanism embedded in the computer storage medium for causing a computer to acquire an image file, the computer program code mechanism having

a first computer code device configured to implement an image file data acquisition mechanism that retrieves ~~color space~~ information from said image file, said information designating color space information to be used by an image output apparatus, and reflecting image output characteristics of said image output apparatus, said color space information designating color space conversion of said image data from an input color space to an output color space ~~from said image file~~; and

a second computer code device configured to implement a color conversion processing mechanism that converts the color space of said image data from the input color space to the output color space on the basis of said color space information when said color space information has been retrieved.

Claim 37 (Currently Amended): The computer program product of Claim 36, wherein:

if said information that designates said color space information is not retrieved, said color conversion processing mechanism converts the color space of said image data using predetermined color space information.

Claim 38 (Currently Amended): An image ~~processing~~ output apparatus for performing image processing on image files containing image data and ~~color space~~ information that designates color space information to be used by said image output apparatus, and that reflects image output characteristics of said image output apparatus, said image data and said ~~color space~~ information that designates said color space information being input from an independent image data generating apparatus, comprising:

means for acquiring an image file containing image data;

means for retrieving said ~~color space~~ information that designates said color space information from said image file acquired by said means for acquiring, wherein said color space information designates a color space conversion of said image data from an input color space to an output color space; and

means for converting the color space of said image data based on said color space information retrieved by said means for retrieving.

Claim 39 (Currently Amended): An image ~~processing~~ output apparatus according to Claim 38, wherein:

if said information that designates said color space information is not retrieved, said means for converting the color space converts the color space of said image data based on predetermined color space information.

Claim 40 (Currently Amended): An image ~~processing~~ output apparatus according to Claim 38, wherein:

said image data contained in said image file is represented by a first color space;

said means for acquiring an image file converts the color space of the image data contained in said image file from said first color space to a second color space; and

said means for converting the color space converts the color space of said image data from said second color space to a third color space.

Claim 41 (Currently Amended): An image ~~processing~~ output apparatus according to Claim 40, wherein:

said first color space is a YCbCr color space;

said second color space is a first RGB color space; and

said third color space is a second RGB color space wherein at least a portion thereof has a gamut equal to or wider than said first color space.

Claim 42 (Currently Amended): An image ~~processing~~ output apparatus according to Claim 41, wherein:

said second color space has a width at least equal to that of a color space during synthesis of said image data.

Claim 43 (Currently Amended): An image output A method for ~~performing image processing on~~ image files containing image data and ~~color space~~ information that designates color space information to be used by an image output apparatus, and that reflects image output characteristics of said image output apparatus, said image data and said ~~color space~~ information that designates said color space information being input from an independent image data generating apparatus, comprising steps of:

acquiring an image file containing image data;

retrieving said ~~color space~~ information that designates said color space information from said image file acquired in said acquiring step, said color space information designating color space conversion of said image data from an input color space to an output color space; and

converting the color space of said image data from the input color space to the output color space based on said color space information retrieved in said retrieving step.

Claim 44 (Currently Amended): The method of Claim 43, further comprising:

determining when said information that designates said color space information is not retrieved, and then converting the color space of said image data based on predetermined color space information.

Claim 45 (Currently Amended): An image ~~processing~~ output apparatus for ~~performing image processing on~~ image files containing image data and ~~color space~~ information that designates color space information to be used by said image output apparatus, and that reflects image output characteristics of said image output apparatus, said image data and said ~~color space~~ information that designates said color space information being input from an independent image data generating apparatus, comprising:

- an image file acquisition mechanism configured to acquire an image file containing image data;

- a color space retrieving mechanism configured to retrieve said ~~color space~~ information that designates said color space information from said image file acquired by said image file acquisition mechanism, said color space information designating color space conversion of said image data from an input color space to an output color space; and

- a color space converter configured to convert the color space of said image data from the input color space to the output color space based on said color space information retrieved by said color space retrieving mechanism.

Claim 46 (Currently Amended): An image ~~processing~~ output apparatus according to Claim 45, wherein:

- if said information that designates said color space information is not retrieved, color space converter converts the color space of said image data based on predetermined color space information.

Claim 47 (Currently Amended): An image ~~processing~~ output apparatus according to Claim 45, wherein:

- said image data contained in said image file is represented by a first color space;
- said image file acquisition mechanism converts the color space of the image data contained in said image file from said first color space to a second color space; and
- said color space converter converts the color space of said image data from said second color space to a third color space.

Claim 48 (Currently Amended): An image ~~processing~~ output apparatus according to Claim 47, wherein:

said first color space is a YCbCr color space;
said second color space is a first RGB color space; and
said third color space is a second RGB color space wherein at least a portion thereof has a gamut equal to or wider than the first RGB color space.

Claim 49 (Currently Amended): An image ~~processing~~ output apparatus according to Claim 48, wherein:

said second color space has a width at least equal to that of a color space during synthesis of said image data.

Claim 50 (Currently Amended): An image ~~processing~~ output apparatus according to Claim 48, wherein:

said third color space is a CIELAB color space in place of the second RGB color space.

Claim 51 (Currently Amended): An image ~~processing~~ output apparatus according to Claim 45, further comprising:

an I/O device configured to transmit said image data after being converted into a color space defined by said color space information as at least one of an electric signal and an electromagnetic signal.

Claim 52 (Currently Amended): An image data output ~~A system for processing image data~~
comprising:

- an image data generating apparatus, including
 - means for generating image data,
 - means for generating an image file containing
 - image data generated by said means for generating, and
 - ~~color space~~ information that designates color space information to be used by an image output apparatus, and that reflects image output characteristics of said image output apparatus, said color space information designating color space conversion of said image data from an input color space to an output color space by an said image processing output apparatus,
 - and
 - means for storing said image data in association with said ~~color space~~ information that designates said color space information in an image file; and
 - the image ~~processing output~~ apparatus, including
 - means for acquiring the image file containing the image data and said the color space information that designates said color space information,
 - means for retrieving said ~~color space~~ information that designates said color space information from said image file, and
 - means for converting the color space of said image data based on said color space information retrieved by said means for retrieving.

Claim 53 (Currently Amended): An image data output ~~A system for processing image data~~
comprising:

- an image data generating apparatus, including,
 - means for acquiring image data,
 - means for designating with ~~color-space~~ information that designates color space information to be used by an image processing apparatus, and that reflects image output characteristics of an image output apparatus an output color space to be used by an image processing apparatus in color space conversion, said image processing apparatus being a different apparatus than said means for acquiring, and
 - means for generating an image file containing
 - image data obtained by said means for acquiring, and
 - said ~~the color-space~~ information that designates said color space information; and
 - the image ~~processing~~ output apparatus, including,
 - means for acquiring the image file,
 - means for retrieving said ~~color-space~~ information that designates said color space information from said image file acquired by said means for acquiring, and
 - means for converting the color space of said image data based on said color space information retrieved by said means for retrieving.

Claim 54 (Currently Amended): An image data output A method for processing image data, comprising steps of:

- (a) generating image data;
 - (b) generating an image file containing
image data generated in said generating step, and
~~color space~~ information that designates color space information to be used by an independent image output apparatus, and that reflects image output characteristics of said independent image output apparatus, said color space information designating color space conversion of said image data from an input color space to an output color space by an said independent image processing output apparatus;
 - (c) storing said image data in an output image file in association with said ~~color space~~ information that designates said color space information;
 - (d) acquiring the output image file containing image data;
 - (e) retrieving said ~~color space~~ information that designates said color space information from said output image file acquired in said acquiring step; and
 - (f) converting the color space of said image data based on said color space information retrieved in said retrieving step,
- wherein steps (a), (b), and (c) are implemented by an image data generating apparatus and steps (d), (e), and (f) are implemented by said independent image ~~processing~~ output apparatus.

Claim 55 (Currently Amended): An image ~~processing~~ data output system, comprising:

an image data generating apparatus, including,

an image data generation mechanism configured to generate image data,

an image file assembly mechanism configured to assemble an image file containing image data generated by said image data generating apparatus, and ~~color space~~ information that designates color space information to be used by an image output apparatus, and that reflects image output characteristics of said image output apparatus, said color space information designating color space conversion of said image data from an input color space to an output color space by an said image processing output apparatus,

a memory configured to store said image data in an output image file in association with said ~~color space~~ information that designates said color space information; and

the image ~~processing~~ output apparatus including

an image file acquisition mechanism configured to acquire the output image file containing image data,

a color space retrieving mechanism configured to retrieve said ~~color space~~ information that designates said color space information from said output image file acquired by said image file acquisition mechanism, and

a color space converter configured to convert the color space of said image data from the input color space to the output color space based on said color space information retrieved by said color space retrieving mechanism.

Claim 56 (Currently Amended): An image ~~processing~~ data output system comprising:

an image data generating apparatus, including

an image file acquisition mechanism configured to acquire image data;

a designation mechanism configured to designate an output color space to be used by an image ~~processing~~ output apparatus in color space conversion of said image data, said image ~~processing~~ output apparatus being a different apparatus than said image file acquisition mechanism, and

a file assembly mechanism configured to assemble an image file containing image data obtained by said image file acquisition mechanism, and ~~the color space~~ information that designates color space information to be used by said image output apparatus, and that reflects image output characteristics of said image output apparatus; and

the image ~~processing~~ output apparatus including

an image file acquisition mechanism configured to acquire the image file,

a color space retrieving mechanism configured to retrieve said ~~color space~~ information that designates said color space information from said image file, and

a color space converter configured to convert the color space of said image data based on said color space information retrieved by said color space retrieving mechanism.